Approved By:

NASA, Quality Assurance	Date	Test Conductor (T/C)	Date
System Test	Date	CSCI Lead, If CSCI Lead is also T/C then, Area Lead	Date

PREPARED BY: _____

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REVISION HISTORY

REV	DESCRIPTION	DATE

LIST OF EFFECTIVE PAGES				
Dates of issue of change pages are:				
Page No.	**A or D***	**Issue or Change No.**	**CR No.**	**Effective Date****

Table of Contents

1. SCOPE

This document defines the test approach and procedures to be executed for the <delivery name> delivery of <CSCI and/or CSC name> by CLCS Software Development. Testing will occur at the Kennedy Space Center in <the Processing Control Center (PCC) Satellite Development Environment (SDE), the Integrated Development Environment in the Launch Control Center and in the Launch Control Center LCC-X demonstration facility, <and/or any other facilities>.

1.1 IDENTIFICATION

This document is the Checkout and Launch Control System (CLCS) <delivery name> Delivery CSCI Integration Test Procedures for <CSCI and/or CSC Name> Document, 84K00xxx Rev. BASIC.

1.2 PURPOSE

The purpose of this document is to define a suite of test procedures that will accurately assess the delivered software to ensure it is functional and meets project commitments for the <delivery name> delivery.

1.3 CSCI OVERVIEW

<A brief description of the CSCI, its component CSC's and how it fits into the CLCS architecture. If appropriate, include a summary of the operations concepts underlying the development and expected use of the software>.

1.4 HARDWARE AND SOFTWARE CONFIGURATIONS

<Summarize the hardware and software configurations required for the test and the expected operational configuration. Where possible, include network diagrams and system wide software architecture diagrams to provide "the big picture">.

1.5 DOCUMENT ORGANIZATION

This document is divided into three sections and four appendices:

Section 1, Scope, discusses the purpose of the CSCI Integration Test, provides a system overview , and describes software and hardware configurations for the system.

Section 2, Applicable Documents, lists the documents used to create and those supporting this document.

Section 3, Test Case Description, contains a description of the test cases, the pass/fail criteria, and the procedures in detail.

Appendix A, Acronyms and Definitions, contains a listing of acronyms and selected word definitions (for words which may have multiple interpretations)

Appendix B, Requirements Traceability and Test Methods Matrix, contains the requirements verification matrix for the test.

Appendix C, Resource Requirements, contains a list of software, hardware, and personnel requirements necessary for each test.

Appendix D, Standard Operating Test Procedures, contains any specific, standard procedures identified within the test cases.

2. APPLICABLE DOCUMENTATION

The following documents, of the revision shown, form a part of this document to the extent specified.

2.1 PARENT DOCUMENTS

The documents in this paragraph establish the criteria and technical basis for the existence of this document. The parent documents are:

Parent Document	Document Number	Rev.	Date
<CLCS Software Development Plan>			
<Appropriate Design Panel 3 documents>			
<Others as applicable>			

Table 2.1: Parent Documents

2.2 APPLICABLE DOCUMENTS

Applicable documents are those documents which form a part of this document. These documents, at the revisions listed below, carry the same weight as if they were stated within the body of this document.

Applicable Document	Document Number	Rev.	Date
<Applicable Software Users Guide>			
<Delivery Document>			
<Others as applicable>			

Table 2.2: Applicable Documents

2.3 REFERENCE DOCUMENTS

Reference documents are those documents which, though not a part of this document, serve to clarify the intent and contents of this document.

Reference Document	Document Number	Rev.	Date
<Con Ops Document>			
<SLS>			
<Others as applicable>			

Table 2.3: Reference Documents

3. TEST CASE DESCRIPTION

This section describes each test case, the expected results, the pass/fail criteria, and a step by step procedure to execute the test. Appendix B contains the Requirements Traceability and Test Methods Matrix, which maps functional requirements to the test case that verifies those requirements. Test cases are stand alone, and can be executed in any order, however, it is recommended to run the test cases in the order in which they are presented.

3.1 <DESCRIPTIVE TEST CASE NAME>

<Provide an overview of what the test case is intended to demonstrate (e.g., the ops scenario that it may be based on, the functions and/or threads that are involved). If applicable, provide any pertinent development history such as previous tests, changes to existing requirements, etc.>

3.1.1 Test Description

3.1.1.1 Detailed Description

<provide a description of the test case procedures e.g., “This test case will exercise all menu items by selecting them in order as they appear on the screen” or “This test case will demonstrate the complete system initiation process beginning with the hardware powered-up but not yet loaded and ending with data flowing through the system and being displayed at the HCI workstation.” >

3.1.1.2 Resource Requirements

3.1.1.2.1 Test Personnel

Personnel required include <at a minimum a Test Conductor and a QA witness>. Skills required by test conductor (or designee) include <any special knowledge or skills>.

3.1.1.2.2 Hardware

The following hardware is required:

- <list of computers, networks, peripherals and test tools required>

3.1.1.2.3 Software

The following Software is required:

- <list of software required including other CSC’s, COTS, test tools and Applications>.

3.1.1.2.4 Data

The following Data is required:

- <list of special data files required >

3.1.1.3 Requirements Summary

This test case demonstrates that the following functional requirements are met:

Requirement Number	Description

3.1.2 Pass/Fail Criteria

Successful completion of the test procedures without any problems that would result in the generation of <critical problem reports> and without an excessive number of <major problem reports> will be sufficient for this test to be considered passed.

<NOTE: critical problem reports are defined as those problems that prevent a user from accomplishing a required task and there is no work around for the problem. Major problem reports are defined as problems that that prevent a user from accomplishing a required task, but there is a work around. Minor problem reports are defined as problems that do not significantly impact the users' ability to perform a required task or the work around is not intrusive to the way in which the user works. It is likely that this terminology will change in the future to line up with the definitions of CLCS Issues in razor>.

3.1.3 Procedure

Refer to Procedure 3.1 in Table 3.1 for test procedures.

Procedure 3.1 - <Test Case Name> **Date:** **Location:** **Start Time:**					
Test Setup/Initial Conditions - <Describe any initial conditions, configurations or set up the test case requires.>					
Step	**Description**	**Expected Results**	**Comments**	**TC**	**QA**
1.	<Describe the step including specific directions on what to enter and how, e.g., "At the HCI workstation, telnet into the CS gateway. Type: telnet sde1csg1"	<Describe in detail the expected result, e.g., "telnet connection is opened, the "->" prompt is displayed."	<leave this blank, it is intended for written comments during test execution such as specific hardware units used, test step redlines, unexpected results, etc.>	<space for initials after step is done>	<space for initials after step is done>
2.					
3.					
4.					
5.					

Table 3.1

Step	Description	Expected Results	Comments	TC	QA
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					

Table 3.1 (cont.)

End Time: _____

Signature Page: Test Case 3.1 - <Test Case Name>

_____ _____

Quality Assurance **Date**

_____ _____

Test Conductor **Date**

Comments:

3.2 TEST CASE 3.2 - <TEST CASE NAME>

<For all test cases, use the same format as Test Case 1>

Appendix A Acronyms and Definitions

<acronym>	*<Definition>*
AT	Acceptance Test - Test to accept hardware and software from a vendor
Certification	Final approval to use a system for a specified set of operations (e.g., hazardous operations in the HMF, launch operations, etc.)
CI	Configuration Item
CIT	CSCI Integration Test
CLCS	Checkout and Launch Control System
CM	Configuration Management
COTS	Commercial Off The Shelf
CSC	Computer Software Component
CSCI	Computer Software Configuration Item
DAR	Delivery Acceptance Review
EDL	Engineering Development Laboratory
GSE	Ground Support Equipment
HCI	Human Computer Interface
HMF	Hypergol Maintenance Facility
HW	Hardware
HWCI	Hardware Configuration Item
IDE	Integrated Development Environment
I/F	Interface
KSC	Kennedy Space Center
LAN	Local Area Network
LCC	Launch Control Complex
LMSMS	Lockheed Martin Space Mission Systems and Services
LPS	Launch Processing System
NASA	National Aeronautics and Space Administration
MSC	Mission Systems Contract (held by LMSMS)
OS	Operating System
PTR	Post-Test Review
PR	Problem Report

QA	Quality Assurance
QE	Quality Engineering
QT	Qualification Test
RLV	Reusable Launch Vehicle
RTPS	Real Time Processing System
RVM	Requirements Verification Matrix
SDC	Shuttle Data Center
SDE	Satellite Development Environment
SEMP	System Engineering Management Plan
SFOC	Space Flight Operations Contract (held by USA)
ST	System Test
SLWT	Super Light Weight Tank
S&MA	Safety and Mission Assurance (includes Reliability, Maintainability, Safety and Quality Assurance)
STS	Space Transportation System
SW	Software
TC	Test Conductor
TPR	Test Progress Review
TR	Test Report
TRR	Test Readiness Review
UAT	User Acceptance Test - Test performed by user community post delivery as part of the system certification process
UIT	Unit Integration Test
USA	United Space Alliance
UT	Unit Test
Validation	Testing performed by organization(s) outside of the developing organization to ensure that the delivered system processes data correctly and conforms to the operations concepts

Appendix B Requirements Traceability and Test Methods Matrix

The following table is intended to show which CLCS Functional Requirement is demonstrated in each CLCS <*CSCI/CSC Name*> CSCI Integration Test (CIT) and what test method was used in that test case. This table will be updated and baselined with each CIT starting with the Redstone Delivery.

Functional Requirement	Traced SLS Requirement	CI Test	Test Case	Test Method			
				Inspection	Analysis	Demo	Test
<req. #>	*<req. #>*	*<Test Name, e.g., "Redstone CIT", "Thor UIT">*	*<Test case number from the CI test e.g., "3.1">*	*<Check (✓) the appropriate test method used in the given test case>*			
						✓	
							✓

Inspection - Visually inspect the item being tested. Examples include code inspections, checking vendor documentation (manuals or Certificates of Compliance) for assertion that products (hardware or software) adhere to required standards

Analysis - Record measurements of the item under test and verify compliance by formal evaluation of those measurements. Examples include statistical analysis of network performance based on simulated data flow (data throughput vs. network load factor), evaluating system reliability based on analysis of problem reports.

Demonstration - Showing that a given function happens as expected, generally using an ops scenario.

Test - Verifying the results of a function or process rather than the function/process itself. Examples include measuring the voltage coming out of a power distribution unit, showing that a software calculation gives the correct answer.

Appendix C Resource Requirements

<Defines personnel requirements, hardware and software configurations, data and test tools for standardized and generic test configurations. If not needed, put "This Appendix is not required">

Appendix D Standard Test Operating Procedures

<Defines frequently used test or test setup procedures. These procedures are usually called as a single step within a test case. If not needed, put "This Appendix is not required">

1. Procedure D.1 - <Procedure Name>

<Brief description of the procedure and in what cases it is applicable.> See Table D.1 for procedure steps.

2. Procedure D.2 - <Procedure Name>

<Brief description of the procedure and in what cases it is applicable.> See Table D.2 for procedure steps.

Procedure D.1 -<Procedure Name>					
		Date:	**Location:**	**Start Time:**	
Test Setup/Initial Conditions - <Describe any initial conditions, configurations or set up the test case requires.>					
Step	**Description**	**Expected Results**	**Comments**	**TC**	**QA**
1.	<Describe the step including specific directions on what to enter and how, e.g., "At the HCI workstation, telnet into the CS gateway. Type: telnet sde1csg1"	<Describe in detail the expected result, e.g., "telnet connection is opened, the "->" prompt is displayed."	<leave this blank, it is intended for written comments during test execution>	<space for initials after step is done>	<space for initials after step is done>
2.					
3.					
4.					

Table D.1

Procedure D.2 -<Procedure Name>					
		Date:	**Location:**	**Start Time:**	
Test Setup/Initial Conditions - <Describe any initial conditions, configurations or set up the test case requires.>					
Step	**Description**	**Expected Results**	**Comments**	**TC**	**QA**
1.	<Describe the step including specific directions on what to enter and how, e.g., "At the HCI workstation, telnet into the CS gateway. Type: telnet sde1csg1"	<Describe in detail the expected result, e.g., "telnet connection is opened, the "->" prompt is displayed."	<leave this blank, it is intended for written comments during test execution>	<space for initials after step is done>	<space for initials after step is done>
2.					
3.					
4.					

Table D.2